



USAID
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MALI

GLOBAL CLIMATE CHANGE

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USAID's climate change activities in Mali support improved natural resource management through sustainable agricultural and forest management practices. Local capacity building through the Upper Niger River Valley Program has been especially successful in promoting environment- and climate-friendly agricultural practices that reduce soil erosion and increase carbon sequestration.

Background. A landlocked Sahelian country with a per capita income of \$250 and a population of 10.5 million, Mali has an agriculture-based economy in which cotton, livestock, and cereals predominate. Much of its population is dependent on rain-fed agriculture for food; however, the rainfall is variable and is affecting the country's fragile natural resource base. USAID has identified Mali as one of the most compelling cases for development assistance, particularly due to its high level of poverty and agricultural situation. USAID's support is concentrated in five strategic areas: (1) increasing access to improved health care and basic education; (2) increasing economic opportunities and income (largely through agriculture); (3) strengthening civil society, community organizations, and local government; (4) improving access to and use of development information (using Internet and rural radio); and (5) enhancing regional stability in northern Mali.

Sector-Specific Climate Change Activities. Particularly addressing economic opportunities through agriculture, USAID is working in Mali to improve natural resource management as well as rural incomes through implementation of sustainable agricultural practices and protection of natural resources. Protecting natural resources such as forests, for example, is beneficial to the climate because forests remove carbon dioxide from the atmosphere and store carbon both above ground in their biomass and in the soils below. USAID helps protect Mali's resources against further environmental degradation by building local capacity to manage forest and agricultural resources in a more sustainable manner.

In the upper valley of the Niger River in Mali, USAID has successfully promoted agricultural practices that have reduced soil erosion, increased crop yields for farmers, and increased carbon sequestration. As a result of the Upper Niger River Valley program (OHVN), an increasing number of farm lands have higher rates of soil carbon, and a number of communities have measurably stabilized or even increased forest cover on their lands.

Amending soils with organic matter has become a crop production management tool for thousands of farmers in the program area. The program demonstrated that soils with higher rates of organic matter increased fertilizer-use efficiency and increased retention of soil moisture. The combined effect was higher yields and lower risk. Some farmers noted that they were hesitant to use manures and vegetative matter on their fields because of the possible presence of weed seeds and disease. However, the composting technologies that were introduced and

USAID's partners in climate change activities in Mali include*:

- Enterprise Works (E.Ws)
- Office de la Haute Vallée (OHV)
- U.S. Geological Survey (USGS)
- World Vision

* Because partners change as new activities arise, this list of partners is not comprehensive.

extended by OHVN reduced the danger of weeds and disease while increasing the positive effects of organic matter. Consequently, according to statistics gathered by OHVN, there are thousands of farmers today in the program area who are using technologies aimed at increasing soil organic matter. A side benefit of this type of agricultural intensification, which both builds the productive capacity of the soil and increases yields, is that farmers are able to stabilize their production areas instead of continually clearing new lands. Since fallowed lands are cleared less frequently, the biomass has a greater chance to increase.

Increased forest cover in some communities is related to agricultural intensification. In the early 1990s, OHVN-supported villages in the Oueléssébougou region south of Bamako negotiated with the Malian Forestry Service to end commercialization of fuelwood from village lands by Bamako-based merchants. The quid pro quo was that communities could only cut wood for their own use and could no longer sell it. Several of these communities went farther than halting commercial cutting. Some developed bylaws that encouraged people to use only deadwood for fuel and to let some areas grow. Others organized themselves into groups to keep an eye out for illegal cutting and to restore vegetation on hillsides that were sources of floodwaters. The results of these initiatives are measurable. U.S. Geological Survey scientists compared the forest cover in nine communities at three time periods over the last 30 years. They found that in all but two cases, the rate of forest cover decline is less since the late 1980s, and in two cases, there was more cover today than in the '80s.

An assessment of OHVN results revealed principles that would likely have application beyond the program area and in other countries for increasing the number of people who invest in technologies that increase carbon sequestration. Common to all people in the OHVN program area who invested in soil carbon or forest land management was a link to livelihoods. The farmers saw a direct link between soil carbon levels and productivity. Community members who protected community forest lands talked in terms of increased ground water, less erosion, sources of pharmacopoeia and game, and more reliable sources of fuelwood. And, while less obvious, people appeared to take pride in taking actions that gave them some control over degradation when compared to a previous time when there appeared to be little that they could do to reverse the tide. Access to 18 new technologies extended by OHVN, including improved composting practices, also contributed to the change in the program area.

One program contribution was not so readily obvious however, but in retrospect was fundamental to the changes in the way that people invested in the land. This was the strengthening of village associations through the Cooperative League of the USA (CLUSA) program. CLUSA provided business and organizational training to the associations. While the training

helped the communities get access to credit, inputs, and markets, it also empowered them with skills and confidence to make and enforce their own rules, including rules governing forest resources. It also gave them the confidence to negotiate with others to get the rights and responsibilities that they needed to carry out their own priorities.

In addition to the above, USAID has helped to reduce deforestation by lowering the demand for wood as a fuel source. It has supported the design, production, and adoption of fuel-efficient wood stoves, which have resulted in significant reductions in carbon dioxide emissions. Thousands of hectares of forest area have been saved by these activities, and thousands more are expected to be preserved in the future.

For more information on Mali, visit
USAID/Mali's Mission Web site at:

- <http://mali.viky.net/usaidd/cgi-bin/index.pl>